



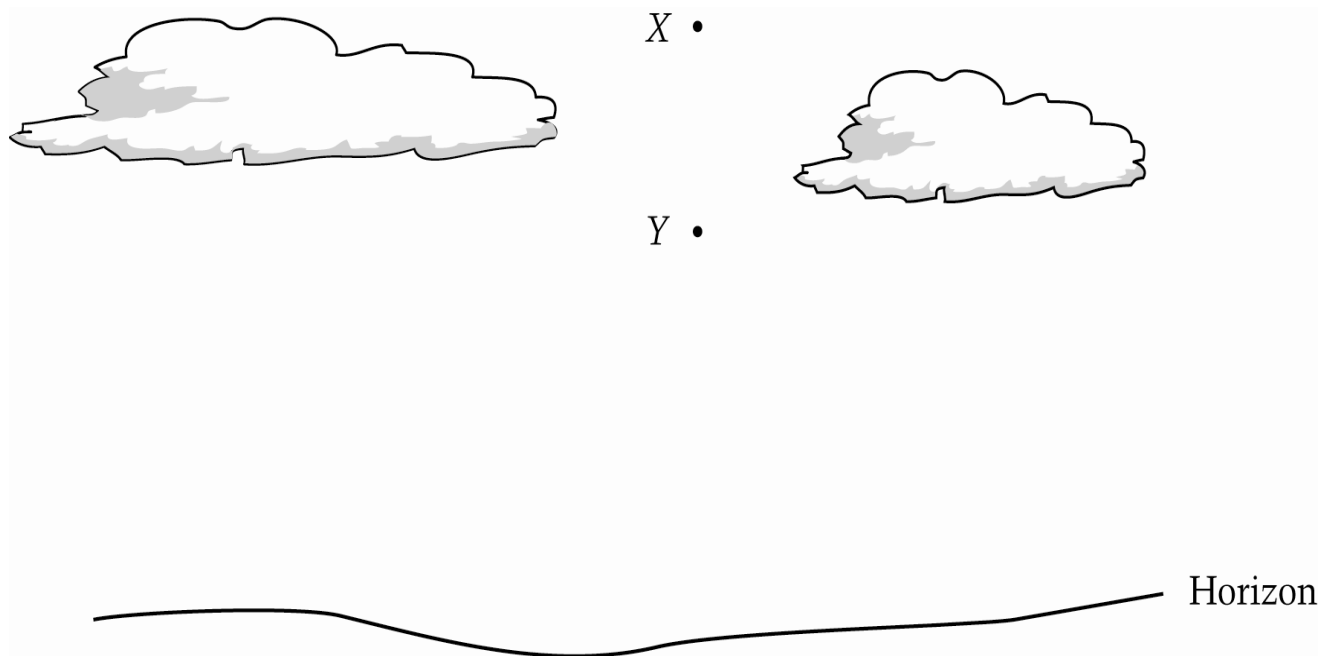
8th Grade Science

NATIONAL ASSESSMENT OF EDUCATIONAL
PROGRESS

1. Kelly slides a flat rock across the smooth ice of a frozen pond. The rock slows down after several seconds. What causes the rock to slow down?
 - A. The thickness of the ice
 - B. The temperature of the air above the ice
 - C. The force of friction between the ice and the rock
 - D. The gravitational force between the ice and the rock

2. Which layer of Earth is divided into plates?
 - A. Mantle
 - B. Crust
 - C. Inner core
 - D. Outer core

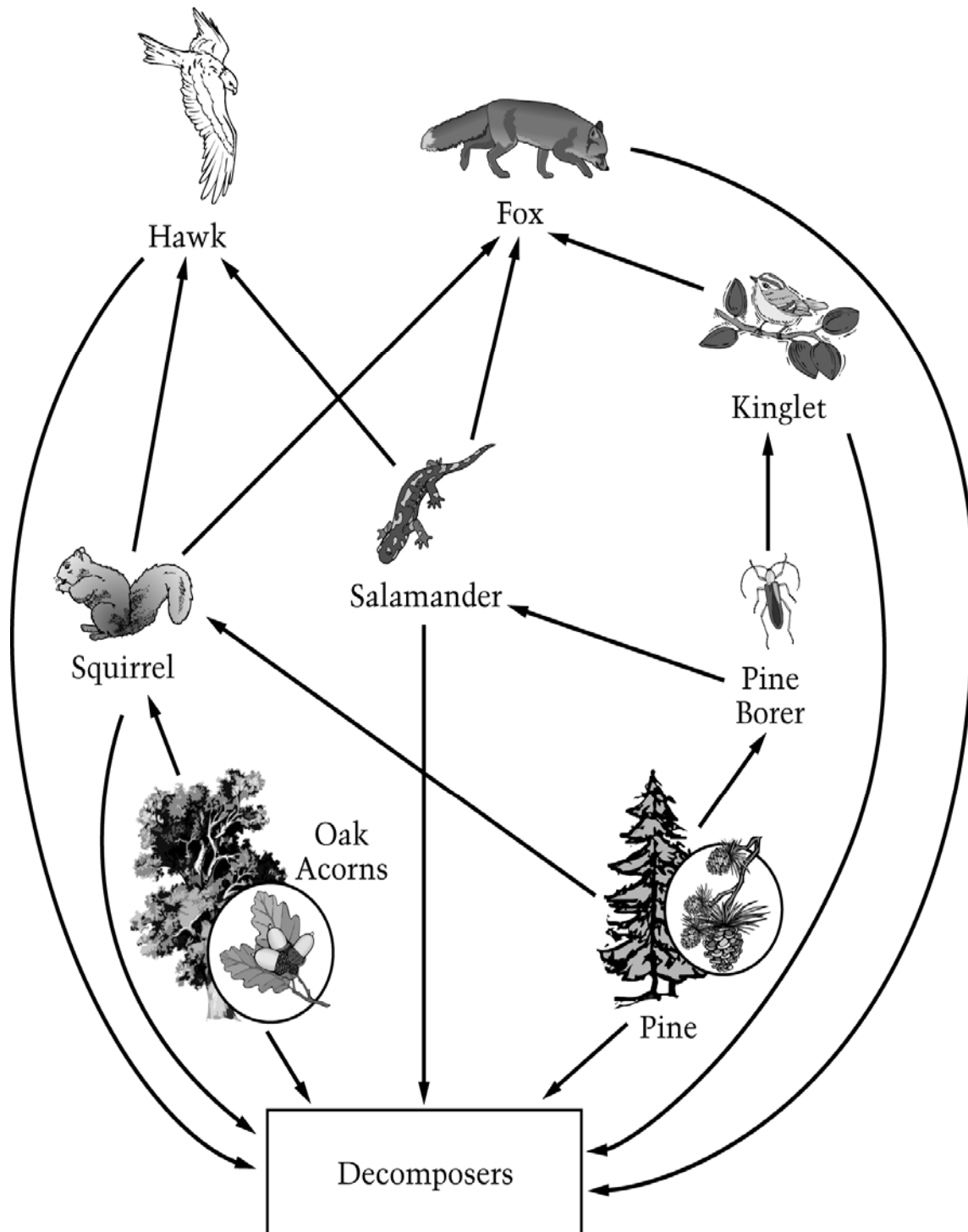
3. Why do mountain climbers at high elevations use oxygen tanks to help them breathe?
 - A. At high elevations the ozone layer draws oxygen out of the atmosphere.
 - B. The atmosphere is less dense at higher elevations so there is less oxygen available.
 - C. Oxygen is heavier than the other gases in the atmosphere and sinks to lower elevations.
 - D. Radiation from the Sun splits oxygen molecules into atoms making the oxygen unbreathable.



4. Point X in the diagram above shows the highest point above the horizon that the Sun reaches in the spring at noon.
When is the Sun's position most likely to be at point Y?
 - A. In the afternoon on a winter day
 - B. In the afternoon on a summer day
 - C. At noon on a winter day
 - D. At noon on a summer day

Questions 5 -7 refer to the diagram below, showing a food web. The arrows show the direction of energy flow. Each arrow points from the organism that is consumed to the organism that consumes it. Use the information in the food web to answer the questions that follow.

FOOD WEB



5. Which statement best explains why decomposers are an important part of this food web?
- A. They use sunlight to make their own food.
 - B. They give off oxygen for animals to breathe.
 - C. They provide camouflage for small animals.
 - D. They make nutrients available to plants.

6. Give one example of an organism from this food web that makes its own food using energy from sunlight.

Organism: _____

Give one example of an organism from this food web that eats only plants.

Organism: _____

Give one example of an organism from this food web that eats only animals.

Organism: _____

7. One year, a parasite infects squirrels and significantly reduces the squirrel population. What effect is a decrease in the population of squirrels most likely to have on the fox population? Fill in only one oval.

- ☐ Population will increase.
- ☐ Population will decrease.
- ☐ Population will remain the same.

Use the food web to explain your answer.

What effect is a decrease in the population of squirrels most likely to have on the salamander population? Fill in only one oval.

- ☐ Population will increase.
- ☐ Population will decrease.
- ☐ Population will remain the same.

Use the food web to explain your answer.

CRATERS ON THE MOON



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8. The surface of the Moon is covered with craters, as shown above. How were most of these craters formed?
- A. By eruptions of active volcanoes
 - B. By impacts of many meteoroids
 - C. By shifting rock on the Moon's surface (moonquakes)
 - D. By tidal forces caused by Earth and the Sun
9. A class observes two demonstrations: water changing into steam and a piece of wood burning and producing smoke. A student concludes that both demonstrations must be examples of a chemical change because a gas is produced in each. Is the student's conclusion accurate? Explain your answer, referring to both demonstrations.

10. Two farmers notice that some bean plants are much taller than others, even though they are growing in the same field. One farmer thinks the difference in height is due to inheritance. The other farmer thinks it is because some plants in the field get more water than others. Describe an experiment that will provide evidence for which farmer is right. You can use seeds from both tall and short plants.

Describe the steps you will follow.

Describe how you will collect your data.

How will you conclude if tallness is inherited or caused by getting more water?

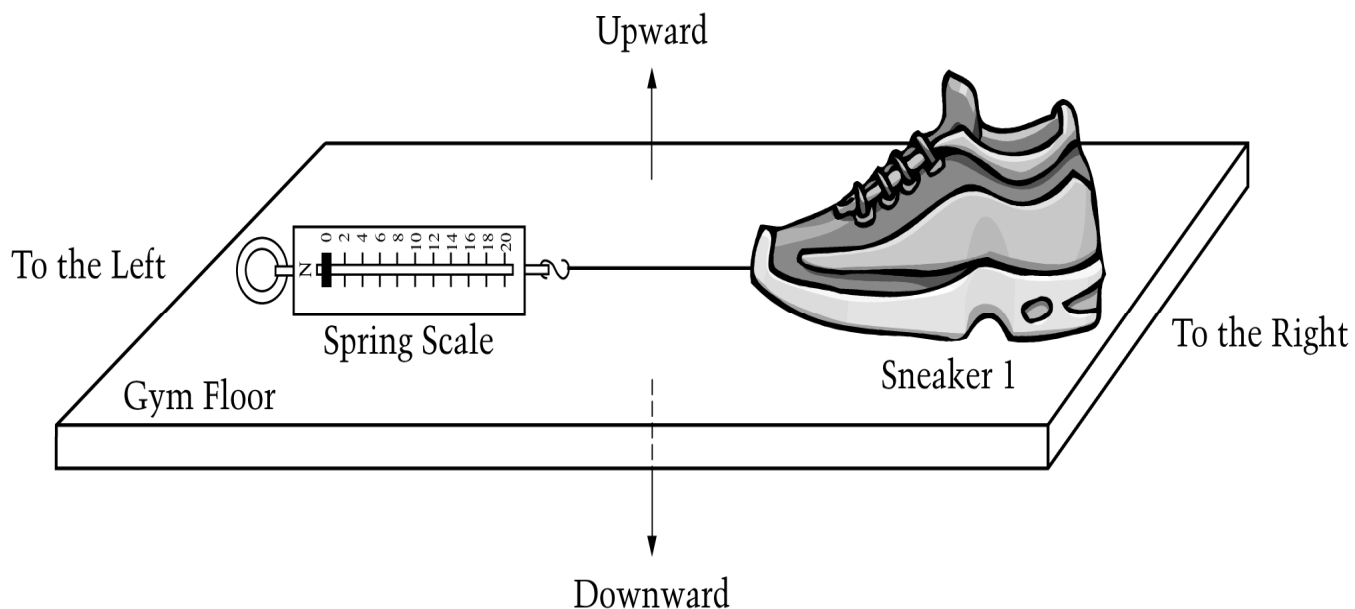
Questions 11- 12 refer to the following information.

Meg designs an experiment to see which of three types of sneakers provides the most friction.

She uses the equipment listed below.

1. Sneaker 1
2. Sneaker 2
3. Sneaker 3
4. Spring scale

She uses the setup illustrated below and pulls the spring scale to the left



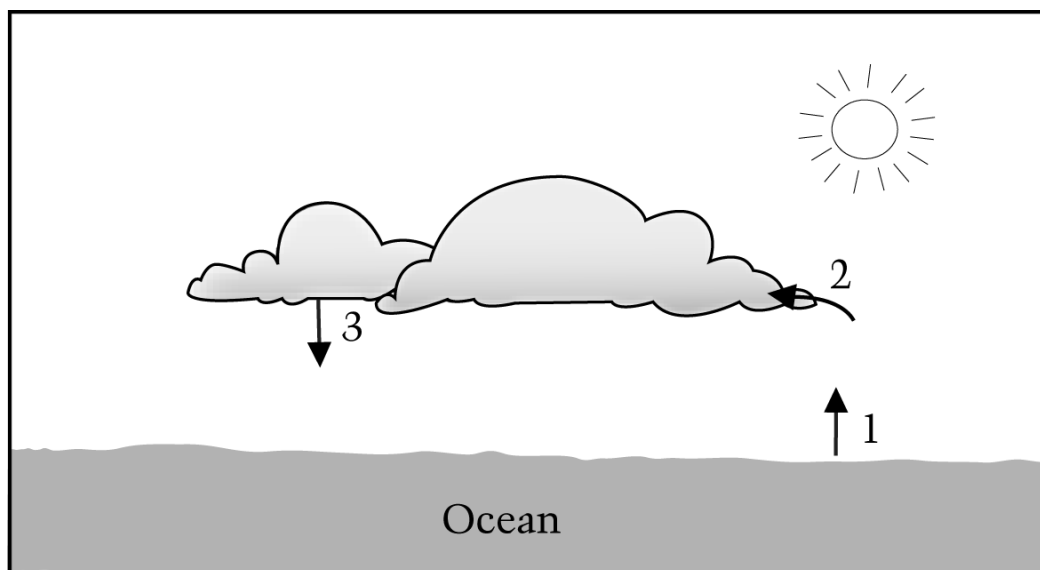
11. In what direction does the force of friction act?

- A. To the left
- B. To the right
- C. Upward
- D. Downward

12. Meg tests one type of sneaker on a gym floor, a second type of sneaker on a grass field, and a third type of sneaker on a cement sidewalk. Her teacher is not satisfied with the way Meg designed her experiment. Describe one error in Meg's experiment.

Describe how Meg could improve the experiment to find out which of the three types of sneakers provides the most friction.

Questions **13-14** refer to the following diagram, which represents a portion of Earth's water cycle.

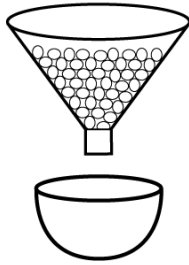


13. Which process is represented by 2?
- A. Liquid water evaporating
 - B. Cool air warming as it rises
 - C. Clouds blocking the Sun's energy
 - D. Water vapor condensing

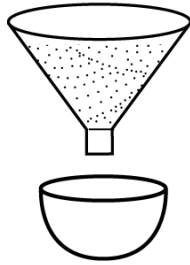
14. Using your knowledge of the water cycle, explain why rainwater is not salty, even though ocean water is.

Three funnels were filled with equal volumes of pebbles, fine sand, and coarse sand, as shown in the diagram below. The same amount of water was poured into each funnel.

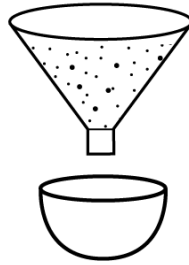
Pebbles



Fine Sand



Coarse Sand



Which correctly lists the order in which the water passed through the funnels, from fastest to slowest?

- A. Pebbles, fine sand, coarse sand
- B. Pebbles, coarse sand, fine sand
- C. Fine sand, coarse sand, pebbles
- D. Coarse sand, pebbles, fine sand

15. Some homes were built near the shoreline of the ocean. Sand dunes lie between the homes and the water. Each year a portion of the sand dunes is eroded by the ocean. To prevent erosion, some citizens suggest planting grasses on the sand dunes, and others suggest building a seawall, a solid barrier along the shoreline. Explain how each plan would prevent erosion of the dunes.

Give an environmental advantage and disadvantage of each plan.

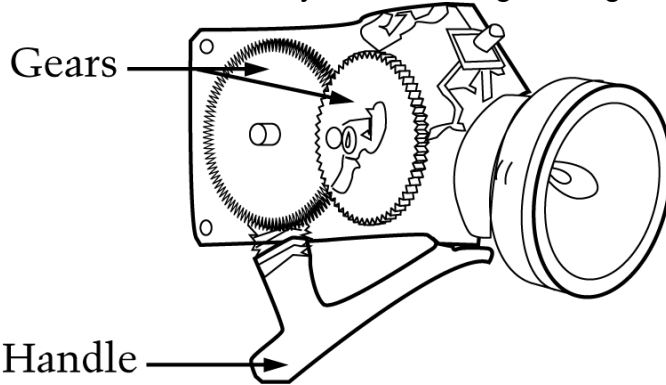
Environmental advantage of planting grasses:

Environmental disadvantage of planting grasses:

Environmental advantage of building a seawall:

Environmental disadvantage of building a seawall:

16. The flashlight shown below has no batteries. It is operated by squeezing and letting go of the handle. Inside the body of the flashlight are gears, which are shown below



Which sequence best identifies the energy transfers that take place within the flashlight to produce light?

- A. Kinetic \rightarrow electrical \rightarrow light
- B. Kinetic \rightarrow chemical \rightarrow light
- C. Chemical \rightarrow kinetic \rightarrow light
- D. Chemical \rightarrow electrical \rightarrow light